

CLAIM AMENDMENTS

1. (Currently Amended) A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

~~first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto; and~~

~~first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points~~

a first varactor diode having a first variable capacitance;
and

a first coupling conductor, the first varactor diode connected to the first coupling conductor, the first coupling conductor being positioned sufficiently near a portion of the signal conductor that an inherent first capacitance between the signal conductor and the first coupling conductor is sufficiently large to couple the first variable capacitance of the first varactor diode to the signal conductor and enable the variable capacitance to substantially influence a rate at which the signal conductor conveys the signal between the two points.

2. (Currently Amended) The transmission line in accordance with claim 1 ~~wherein the first means comprises a first varactor diode~~ further comprising and insulating substrate, wherein the signal path is embedded in the insulating substrate.

3. (Currently Amended) The transmission line in accordance with claim 2 ~~wherein the first coupling means comprises a first coupling conductor in electrical contact with the first varactor diode and positioned near the signal conductor such that the first coupling capacitance is provided between the first coupling conductor and the signal conductor~~ wherein the first coupling conductor is embedded in the substrate.

4. (Currently Amended) The transmission line in accordance with claim 3 1

wherein the first varactor diode links the first coupling conductor to a ground potential.

5. (Currently Amended) The transmission line in accordance with claim 3 1 further comprising ~~means for generating the first control voltage on the first coupling conductor so that the first control voltage appears across the first varactor diode~~ a first voltage source for supplying an adjustable first voltage to the first coupling conductor for controlling the first variable capacitance of the first varactor diode.

6. (Currently Amended) The transmission line in accordance with claim 5 wherein the ~~means for generating the first control voltage~~ source comprises a first digital-to-analog converter (DAC) connected to the first coupling conductor, wherein the first DAC generates the first control voltage of magnitude controlled by data applied as input to the first DAC.

7. (Currently Amended) ~~The transmission line in accordance with claim 3 further comprising~~ A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto; and

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points, wherein the first coupling means comprises a first coupling conductor in electrical contact with the first varactor diode and positioned near the signal conductor such that the first coupling capacitance is provided between the first coupling conductor and the signal conductor,

wherein the first means comprises a first varactor diode; and

wherein the transmission line further comprises an insulating substrate residing between the first coupling conductor and the signal conductor.

8. (Currently Amended) ~~The transmission line in accordance with claim 1~~ A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto;

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points; and

an insulating substrate, wherein the signal conductor is embedded in an the insulating substrate.

9. (Currently Amended) The transmission line in accordance with claim 1 further comprising:

~~second means having second variable capacitance that is a function of a magnitude of a second control voltage supplied as input thereto; and~~

~~second coupling means for providing a sufficient amount of second coupling capacitance between the second variable capacitance and the signal conductor such that the second capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points~~

a second varactor diode having a second variable capacitance; and

a second coupling conductor spaced from the first coupling conductor, the second varactor diode being connected to the second coupling conductor, the second coupling conductor being positioned sufficiently near a portion of the signal conductor that an inherent second capacitance between the signal conductor and the second coupling conductor is sufficiently large to couple the second variable capacitance of the second varactor diode to the signal conductor and enable the variable capacitance to substantially influence a rate at which the signal conductor conveys the signal between the two points.

10. (Currently Amended) The transmission line in accordance with claim 9

~~wherein the first means comprises a first varactor diode and wherein the second means comprises a second varactor diode~~
wherein an anode of the first varactor diode is connected to the first coupling conductor and a cathode of the second coupling conductor is connected to the second coupling conductor.

11. (Currently Amended) The transmission line in accordance with claim 10

~~wherein the first coupling means comprises a first coupling conductor in electrical contact with the first varactor diode and positioned near the signal conductor such that the first coupling capacitance is provided between the first coupling conductor and the signal conductor,~~

~~wherein the second coupling means comprises a second coupling conductor in electrical contact with the second varactor diode and positioned near the signal conductor such that the second coupling capacitance is provided between the second coupling conductor and the signal conductor~~ comprising a first voltage source for supplying a first adjustable voltage to the first coupling conductor for controlling the second variable capacitance of the first varactor diode.

12. (Currently Amended) The transmission line in accordance with claim 11 further comprising ~~control means for generating the first control voltage on the first coupling conductor so that the first control voltage appears across the first varactor diode and for generating the second control voltage on the second coupling conductor so that the second control voltage appears across the second varactor diode~~

a second voltage source for supplying an adjustable second control voltage to the second coupling conductor for controlling the second variable capacitance of the second varactor diode.

13. (Original) The transmission line in accordance with claim 12 wherein the first and second control voltages are of opposite polarity.

14. ~~The transmission line in accordance with claim 13~~ A transmission line providing a signal path for conveying a signal

between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto;

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points;

second means having second variable capacitance that is a function of a magnitude of a second control voltage supplied as input thereto; and

second coupling means for providing a sufficient amount of second coupling capacitance between the second variable capacitance and the signal conductor such that the second capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points,

wherein the first means comprises a first varactor diode,

wherein the second means comprises a second varactor diode,

wherein the first coupling means comprises a first coupling conductor in electrical contact with the first varactor diode and positioned near the signal conductor such that the first coupling capacitance is provided between the first coupling conductor and the signal conductor,

wherein the second coupling means comprises a second coupling conductor in electrical contact with the second varactor diode and positioned near the signal conductor such that the second coupling capacitance is provided between the second coupling conductor and the signal conductor,

wherein the transmission line further comprise comprising control means for generating the first control voltage on the first coupling conductor so that the first control voltage appears across the first varactor diode and for generating the second control voltage on the second coupling conductor so that the second control voltage appears across the second varactor diode,

wherein the first and second control voltages are of opposite polarity,

wherein the control means comprises

a first digital-to-analog converter (DAC) connected to the first coupling conductor, wherein the first DAC generates the first control voltage of magnitude controlled by first data applied as input to the first DAC;

~~wherein the control means further comprises~~ a second (DAC) connected to the second coupling conductor, wherein the second DAC generates the second control voltage of magnitude controlled by second data applied as input to the second DAC; and

means for applying the first data as input to the first DAC and the second data as input to the second DAC.

15. (Currently Amended) ~~The transmission line in accordance with claim 9 further comprising~~ A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto;

a first coupling conductor connected to the first means and positioned near the signal conductor such that a first coupling capacitance occurs between the first coupling conductor and the signal conductor of sufficient magnitude to enable the first variable capacitance to substantially influence a rate at which the signal conductor conveys the signal between the two points;

second means having second variable capacitance that is a function of a magnitude of a second control voltage supplied as input thereto;

a second coupling conductor connected to the second means and positioned near the signal conductor such that a second coupling capacitance occurs between the second coupling conductor and the signal conductor of sufficient magnitude to enable the second variable capacitance to substantially influence the rate at which the signal conductor conveys the signal between the two points; and

an insulating substrate linking the first coupling conductor to the signal conductor and linking the second coupling conductor to the signal conductor.

16. (Original) The transmission line in accordance with claim 9 wherein the signal conductor is embedded in an insulating substrate.

17. (Currently Amended) The transmission line in accordance with claim 1 wherein the first ~~means comprises~~ varactor diode is a first thin film varactor diode.

18. (Currently Amended) The transmission line in accordance with claim 9

wherein the first ~~means comprises~~ varactor diode is a thin film varactor diode, and

~~where~~ wherein the second ~~means comprises~~ varactor diode is a second thin film varactor diode.

19. (Currently Amended) ~~The transmission line in accordance with claim 1~~ A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto; and

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points,

wherein the first coupling conductor comprises:

a plurality of conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the signal conductor, and

means for conductively linking the conductive fingers to the first varactor diode.

20. (Currently Amended) The transmission line in accordance with claim ~~11~~ 1

wherein the first coupling conductor comprises:

a plurality of first conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the signal conductor; and

means for conductively linking the conductive fingers to the first varactor diode, and

wherein the second coupling conductor comprises:

a plurality of second conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the second coupling capacitance along a separate portion of the signal conductor; and

means for conductively linking the second conductive fingers to the second varactor diode.

21. (Currently Amended) ~~The transmission line in accordance with claim 1~~ A transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto; and

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points

wherein the signal conductor has an elongate first planar surface extending in a first direction;

wherein the first coupling means comprises a conductive second planar surface parallel and proximate to a first area of the first planar surface; and

wherein the transmission line further comprises an insulating substrate interconnecting the first area of the first planar surface to second planar surface.

22. (Original) The transmission lie in accordance with claim 21 wherein the first planar surface is of substantially uniform

first width in a second direction perpendicular to the first direction in said first area and is of a substantially uniform second width in the second direction other than in the first area, wherein said first and second widths are substantially dissimilar.

23. (Original) The transmission line in accordance with claim 22 wherein the conductive second planar surface comprises:

a plurality of conductive fingers, each being positioned near the first area of the first planar surface and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the first area of the first planar surface, and

means for conductively linking the conductive fingers to the first variable capacitance.

24. (Original) The transmission line in accordance with claim 23 wherein the first means comprises a first varactor diode.

25. (Currently Amended) ~~The transmission line in accordance with claim 1~~ A

transmission line providing a signal path for conveying a signal between two points with an adjustable signal path delay, the transmission line comprising:

a signal conductor for conveying the signal between the two points;

first means having first variable capacitance that is a function of a magnitude of a first control voltage supplied as input thereto; and

first coupling means for providing a sufficient amount of first coupling capacitance between the first variable capacitance and the signal conductor such that the first variable capacitance substantially influences a rate at which the signal conductor conveys the signal between the two points,

wherein the signal conductor has a substantially circular cross-section perpendicular to a direction in which it conveys the signal.

26. (Original) The transmission line in accordance with claim 25

wherein the signal conductor has a first outer surface, and

wherein the transmission line further comprises first insulating material formed around the first outer surface of the signal conductor such that the first insulating material has a substantially circular cross-section perpendicular to the direction in which the signal conductor conveys the signal.

27. (Original) The transmission line in accordance with claim 26 wherein the first insulating material has a second outer surface and wherein the first coupling means comprises:

a first conductive layer formed on the second outer surface, and

means for conductively linking the first variable capacitance to the first conductive layer.

28. (Original) The transmission line in accordance with claim 27 wherein the first means comprises a first varactor diode.

29. (Original) The transmission line in accordance with claim 26

wherein the first insulating material has a second outer surface,

wherein the first coupling means comprises a first conductive layer formed on the second outer surface, and

wherein the first means comprises a first thin film varactor diode formed on the second outer surface of the first conductive layer.

30. (Original) The transmission line in accordance with claim 29 further comprising:

a second conductive layer covering the thin film varactor diode such that the thin film varactor diode resides between the first and second conductive layers; and

means for coupling the second conductive layer to ground potential.

31. (Original) The transmission line in accordance with claim 9 wherein the signal conductor has a substantially circular cross-section perpendicular to a direction in which it conveys the signal.

32. (Original) The transmission line in accordance with claim
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wherein the signal conductor has a first outer surface, and
wherein the transmission line further comprises first
insulating material formed around the first outer surface of the
signal conductor such that the first insulating material has a
substantially circular cross-section perpendicular to the direction
in which the signal conductor conveys the signal.

33. (Original) The transmission line in accordance with claim
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wherein the first insulating material has a second outer
surface,

wherein the first coupling means comprises:

a first conductive layer formed on the second outer
surface, and

means for conductively linking the first variable
capacitance to the conductive layer, and

wherein the second coupling means comprises:

a second conductive layer formed on the second outer
surface, and

means for conductively linking the second variable
capacitance to the conductive layer.

34. (Original) The transmission line in accordance with claim
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wherein the first means comprises a first varactor diode, and
wherein the second means comprise a second varactor diode.

35. (Original) The transmission line in accordance with claim
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wherein the first insulating material has a second outer
surface,

wherein the first coupling means comprises a first conductive
layer formed on the second outer surface,

wherein the second coupling means comprises a second
conductive layer formed on the second outer surface,

wherein the first means comprises a first thin film varactor
diode formed on the second outer surface of the first conductive
layer, and

wherein the second means comprises a second thin film varactor diode formed on the second outer surface of the second conductive layer.

36. (Original) The transmission line in accordance with claim 35 further comprising:

a third conductive layer covering the first and second thin film varactor diodes such that the first thin film varactor diode links the first and third conductive layers and such that the second thin film varactor diode links the second and third conductive layers, and

means for coupling the third conductive layer to ground potential.

37. (Original) The transmission line in accordance with claim 36 further comprising:

control means for generating the first control voltage on the first conductive layer so that the first control voltage appears across the first thin film varactor diode and for generating the second control voltage on the second conductive layer so that the second control voltage appears across the second varactor diode.
